

## CLAIMS

What is claimed is:

1           1. A method of managing a lifecycle of an electronic contract representing  
2 a relationship between at least two parties sharing a business process  
3 comprising:

4           exchanging public keys for each of the parties;

5           negotiating the electronic contract;

6           digitally signing and verifying the electronic contract;

7           issuing role certificates to participants of the shared business process, the  
8 role certificates defining authorization of participants to perform at least a part of  
9 the shared business process and for using the public keys;

10          registering, by the participants, to receive the electronic contract;

11          distributing the electronic contract to the participants; and

12          performing the shared business process by the participants.

1           2. The method of claim 1, further comprising updating the shared  
2 business process by modifying the electronic contract and redistributing the  
3 electronic contract to the participants.

1           3. The method of claim 1, further comprising exchanging key fingerprints  
2 between the parties and using the key fingerprints in verifying the electronic  
3 contract.

1           4. The method of claim 1, wherein negotiating the electronic contract  
2 comprises determining terms and conditions of the electronic contract and  
3 defining allowable roles for participants and process elements.

1           5. The method of claim 1, further comprising storing the electronic  
2 contract by an archive agent prior to distributing the electronic contract and

wherein registering to receive the electronic contract comprises registering with a purchase/subscribe agent to receive the electronic contract by the participants.

6. The method of claim 1, wherein the electronic contract is distributed to the participants according to a publish and subscribe model.

7. The method of claim 1, further comprising terminating the electronic contract by modifying the electronic contract to halt authorization of the shared business process.

8. The method of claim 1, wherein digitally signing and verifying the electronic contract comprises cross-checking each other's digital signatures on the electronic contract by the parties, without involving a trusted third party.

9. An article comprising: a storage medium having a plurality of machine readable instructions, wherein when the instructions are executed by a processor, the instructions provide for managing a lifecycle of an electronic contract representing a relationship between at least two parties sharing a business process by exchanging public keys for each of the parties, negotiating the electronic contract, digitally signing and verifying the electronic contract, issuing role certificates to participants of the shared business process, the role certificates defining authorization of participants to perform at least a part of the shared business process and for using the public keys, registering, by the participants, to receive the electronic contract, distributing the electronic contract to the participants, and performing the shared business process by the participants.

10. The article of claim 9, further comprising instructions for updating the shared business process by modifying the electronic contract and redistributing the electronic contract to the participants.

11. The article of claim 9, further comprising exchanging key fingerprints between the parties and using the key fingerprints in verifying the electronic contract.

12. The article of claim 9, wherein negotiating the electronic contract comprises determining terms and conditions of the electronic contract and defining allowable roles for participants and process elements.

13. The article of claim 9, further comprising instructions for storing the electronic contract by an archive agent prior to distributing the electronic contract and wherein instructions for registering to receive the electronic contract comprise instructions for registering with a purchase/subscribe agent to receive the electronic contract by the participants.

14. The article of claim 9, wherein the electronic contract is distributed to the participants according to a publish and subscribe model.

15. The article of claim 9, further comprising instructions for terminating the electronic contract by modifying the electronic contract to halt authorization of the shared business process.

16. The article of claim 9, wherein instructions for digitally signing and verifying the electronic contract comprise instructions for cross-checking each other's digital signatures on the electronic contract by the parties, without involving a trusted third party.

17. A system for managing a lifecycle of an electronic contract comprising:

at least two parties to share a business process represented by the electronic contract, each of parties comprising at least one participant for performing an element of the shared business process, each of the parties

6 exchanging public keys associated with the electronic contract, negotiating the  
7 electronic contract, and digitally signing and verifying the electronic contract;  
8 an archive agent coupled to the parties to store the signed and verified  
9 electronic contract; and  
10 a purchase/subscribe agent coupled to the archive agent and the parties  
11 to receive registrations from the participants and to distribute the signed and  
12 verified electronic contract to the participants.

1 18. The system of claim 17, wherein no dominant authority and no  
2 hierarchy of parties exists in the system.

1 19. The system of claim 17, wherein the at least two parties enforce  
2 authorization of participants to perform elements of the shared business process  
3 without use of a trusted third party.

1 20. The system of claim 17, further comprising a role certificate for  
2 presentation by a first participant of a first party to a second participant of a  
3 second party to verify, according to trust rules defined in the electronic contract,  
4 that the first participant is authorized to perform at least part of the shared  
5 business process.

1 21. The system of claim 17, wherein the parties cross-check each other's  
2 digital signatures on the electronic contract.

1 22. The system of claim 17, wherein the parties exchange key  
2 fingerprints between the parties.

1 23. The system of claim 17, wherein the parties determine terms and  
2 conditions of the electronic contract and define allowable roles for participants  
3 and process elements.